50 years in Zoology

Gordon Grigg

This issue of the *Australian Zoologist* is published 50 years after I went to the University of Queensland in 1960 to become a zoologist.

Dan Lunney invited me to put together a 'photo essay'. I agreed because it gives me an opportunity to salute colleagues and friends who made so many things possible. Obviously there is not room to include all of the colleagues and friends with whom it has been my great pleasure and privilege to work. Nevertheless, please consider this a salute to all of you.

The order of the photos is project based, which conveys a loose chronology as well. Uncredited photos were taken by me. I cannot recall who took some of them, and these are identified as 'photographer not recorded'. Subject matter rather than photographic merit has dictated choice and many of the photos have suffered over the years.

Warning to would-be zoologists: These photos convey a rather biased impression of the life of an academic zoologist, as if I did nothing but go on field trips. The photos also fail to convey the hard work that field trips usually involve. Certainly I have always believed that a study of vertebrate biology must be grounded in knowledge about how the critters live and many of the physiological questions I have always been interested in could be answered only by field work. However, for every day in the field there have been many days preparing and delivering lectures, talking with students, writing grant proposals, going to meetings, reviewing draft theses and papers, writing up results for publication, dealing with administrators and all of the other things that, in reality, dominate the life of a university-based zoologist.

Most of the publications arising from the work depicted in this essay can be found on the University of Queensland digital repository at http://espace.library.uq.edu.au/

Gordon Grigg, December 2009.

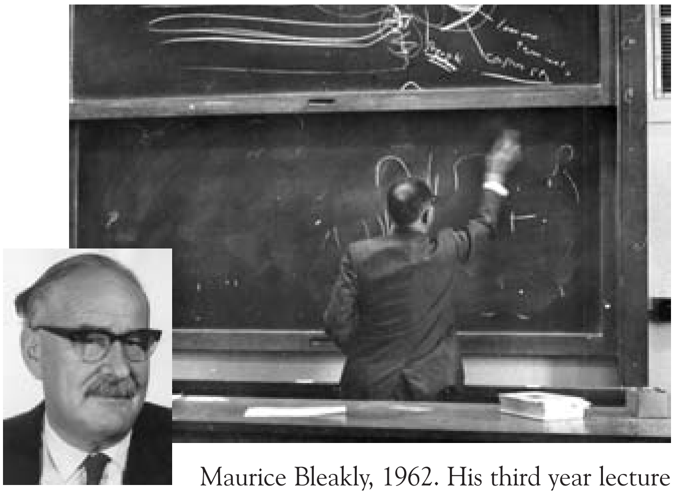
This essay also gives me an opportunity to salute, and thank, Lyn Beard (nee Smith). Peter Harlow advised me that she would be a good replacement for him when he left Sydney to go overseas. He told me "She'd be good in the field, give her a go". I had learned to respect Peter's judgment. Lyn started on Monday June 2 1980 and she reminds me from time to time that her first job was cleaning mud from the vehicles that we had brought back on the previous night from a student field trip to Fowlers Gap.

Well, she was good in the field, and in the lab, absolutely superb in fact, and any measurement she made, any information she recorded, could be relied on absolutely. She soon became a valued collaborator and co-author, as Peter Harlow had been. When I moved from Sydney to the University of Queensland in 1989, Lyn and her husband Barry moved too and have made their home in Brisbane. Many projects would not have been possible without Lyn's technical and intellectual input and encouragement, and her commitment. If I had to single out one anecdote to illustrate her commitment, it would be our second series of surveys of kangaroos in the Longreach – Blackall district in June 1994, with Lyn as observer, sitting behind me in a Drifter Ultralight. We flew survey sessions each morning and each afternoon, and we had to be back on the ground after each session to meet Barry bringing baby Julie out to the airstrip for her feed.

To you Lyn, Bravo!

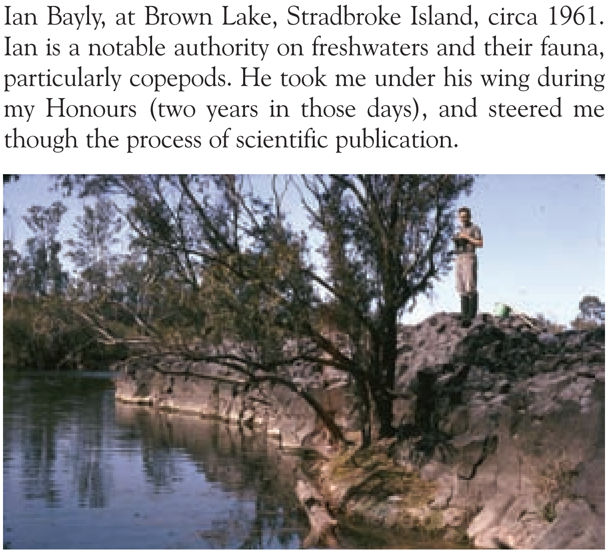
Lyn Beard, on aerial survey, South Australia 1987

Theme edition of Australian Zoologist "*Ecology meets Physiology*", a Gordon Grigg festschrift, edited by Lyn Beard, Daniel Lunney, Hamish McCallum and Craig Franklin. Australian Zoologist Vol 35 (2) 2010.

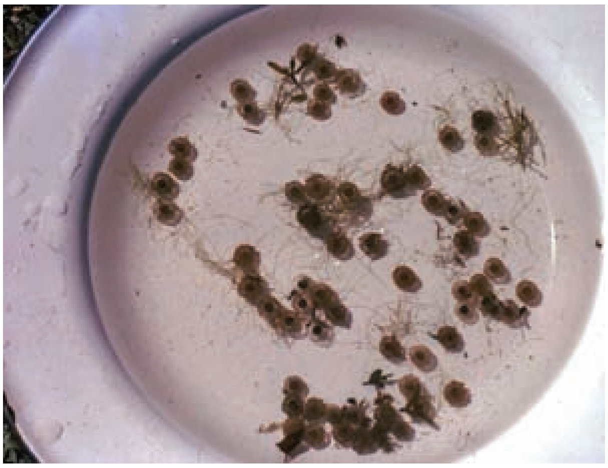


Maurice Bleakly, 1962. His third year lecture course in comparative vertebrate anatomy was legendary, as were his home-mechanic exploits (Jaguars). I took this photo in a lecture, pulling the camera down out of sight before he turned around and hoping he would not have heard the click. I recall him telling us that crocodiles had unique and very strange heart anatomy, and that nobody knew why. Bleakly became my Honours supervisor for a project on Queensland lungfish.

Ian Bayly, at Brown Lake, Stradbroke Island, circa 1961. Ian is a notable authority on freshwaters and their fauna, particularly copepods. He took me under his wing during my Honours (two years in those days), and steered me though the process of scientific publication.



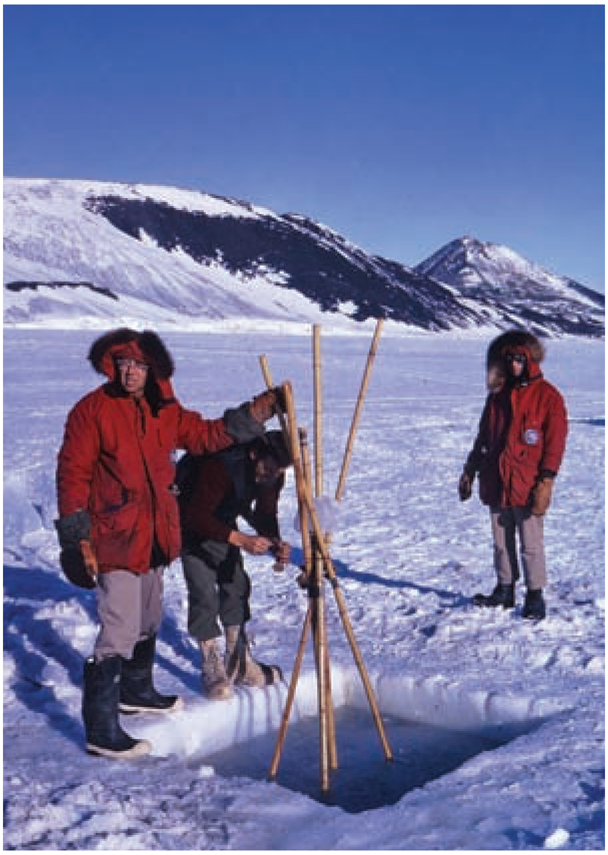
Barambah Creek, a tributary of the Burnett River in SE Queensland, 11 August 1964. Norm Milward (pictured), then a lecturer in the Zoology Department at UQ, and I had stood on this high bank the previous evening and watched Queensland Lungfish spawning



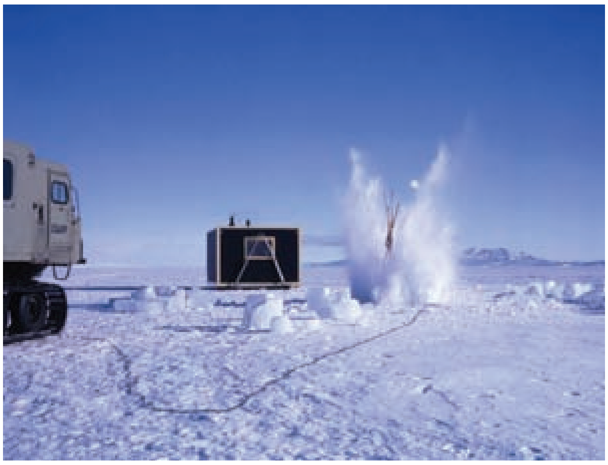
Lungfish eggs retrieved from the weed bed the following morning

Claude Lenfant and Kjell Johansen (right) visited UQ in 1965 from the University of Washington in Seattle to work on respiratory and cardiovascular physiology of lungfish. They generously included me in the work. In this photo, Kjell exposes blood vessels of an anaesthetized lungfish to allow implantation of cannulae to monitor blood pressure and take blood samples for oxygen and carbon dioxide measurements.

I learned a great deal from their visit to UQ, and the friendship with Kjell led to us working on the crocodile heart at Sydney University in 1981, and remained alive until Kjell's unfortunately premature death in 1987.

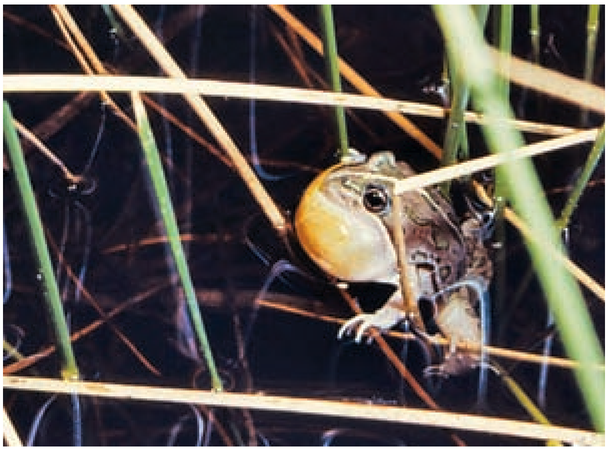


Robert (Bob) Morris (left) and Don Potts (far right), McMurdo Sound, Antarctica 1966. Bob was my PhD supervisor at the University of Oregon and Don a fellow zoologist with whom I had bushwalked in the University of Queensland club from 1960-1964. Don was doing a PhD with Joe Connell at the University of California, Santa Barbara. My PhD was on another topic (see paper by Rufus Wells) but Bob had an NSF grant for work on Antarctic fish and Don and I needed little persuasion to join him as assistants



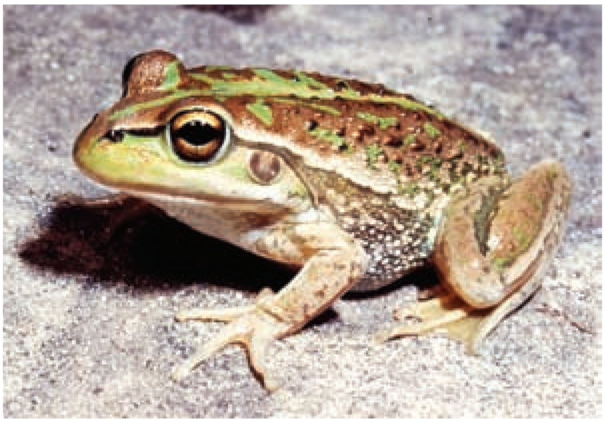
Gelignite taped to bamboo poles and placed at the four corners of a hole dug through the floating sea ice with a chain saw was exploded with detonators touched to the vehicle's battery. This blew out the bottom of the hole and the brash ice was then dipped out to clear access to the sea below. A hut with a hole in its floor was then pulled over it for fishing. Nowadays holes are cut with a large auger.

At the University of Sydney on a post-doc with Geoff Satchell, I worked at first on Port Jackson Sharks but hankered to work on reptile thermoregulation and applied unsuccessfully for funding. John Barker, then a technician in Zoology, got me interested in frogs, which led to collecting and photographic trips and, ultimately, to a field guide published in 1978, revised in 1995 with Mike Tyler as co-author. John was a wonderful guitar player. Sadly, he died when the revised edition was finalized but not yet in print



We soon started making recordings of frog mating calls as well as taking photographs, and published a cassette tape. Many of these calls would now be very hard to get, with such a conspicuous decline in frogs. Here, a *Limnodynastes tasmaniensis* calls from a roadside ditch near Narrandera, NSW.

Litoria raniformis



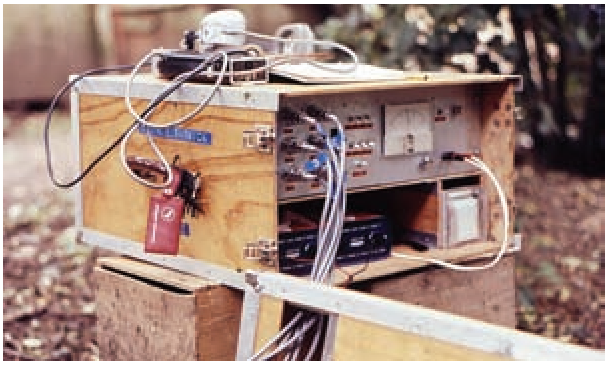
Inevitably observations in the field led to questions, such as the relationships between closely related species with overlapping geographic ranges. For an Honours project, Gillie Courtice (see her paper elsewhere) explored the relationship between *Litoria raniformis* and *L. aurea* where they overlap in coastal Victoria. Here she is *en route* to a likely looking pond near Cann River, August 1972.

Dan Lunney, long term colleague and fellow RZS member, with a male Agile Antechinus, *Antechinus agilis*, a species that has now held his attention for 40 years. The location is Nadgee Nature Reserve on the far south coast of New South Wales, which is, according to Dan, "a jewel in the crown of the NSW reserve system and an ideal place for research into such questions as the long-term effect of fire and drought on our native fauna". Winter 1974. Photographer not recorded.

In January 1971 I joined Bill Dawbin and Dick Barwick on a trip to Stephens Island off the north tip of the South Island, NZ. Dick was on the staff at ANU and was accompanied by Honours student Rick Shine. Landing on Stephens Island was a bit of an adventure.

Bill Dawbin, then a Reader in Zoology at Sydney University, steps ashore. Bill was famous for his seminal research on whales and on tuataras.

Tuataras were the focus of the trip, Bill Dawbin to continue his very long term study of a large marked population, Dick Barwick to study thermal relations. [John Simons and I later published on the separation of oxygenated and deoxygenated blood traversing the incompletely divided heart of tuataras.]

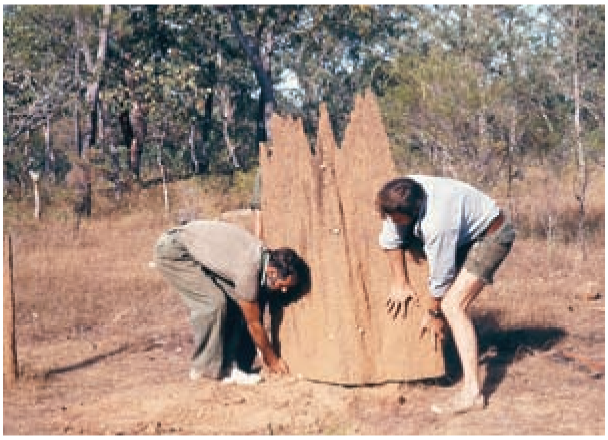


Dick Barwick's equipment for monitoring ambient temperatures.

Dick Barwick listens in to a radio transmitter (under the antenna loop). Figure on right possibly Rick Shine.

Rick Shine (left) and Joe Perano at the end of field trip party. Joe had become a friend of Bill Dawbin as a result of Bill's whale research. Joe and his brothers were whalers in the famous Tory Channel until December 1964. Interesting history at http://www.dnzb.govt.nz/DNZB/alt_essayBody.asp?essayID=3P22

My first real opportunity to work on reptiles came with an invitation to work on crocodiles with Professor Harry Messel (pictured), then Head of the School of Physics at Sydney. Driving in to the Goyder River in northern Arnhem Land in June 1972 via Mainoru I saw my first 'magnetic' termite mounds. They were in low lying, boggy country, and we saw a lot of that; the country had not dried out sufficiently from the wet season and the trip took days longer than it should have. There was quite a crew of us, and we all had plenty of time to wonder and debate about the reason behind their intriguing shape. Photographer not recorded.



At camp on the Goyder River, NT, Chris Lehman and I measured surface and core temperatures in a nearby termite mound over several days and then Keith Brockelsby (left) and I sawed it off at the base and re-oriented it from N-S to E-W. Not surprisingly, the thermal regime changed dramatically, and not beneficially. This observation and others later led to a PhD study by Peter Jacklyn (see his paper elsewhere). Photo Chris Lehman.

Andrew Grigg, Susan Grigg and Michael Cairncross provide scale and an ID number at a termite mound on the Tomkinson R floodplain near Maningrida NT. January 1976. This is part of an ongoing study of the growth and decay of the mounds. Jenny Grigg must be hiding behind the mound.

Harry Messel's extraordinary and ambitious Crocodile Research Programme kick-started a diverse array of crocodile research in Australia, the knock-on effects of which are still being felt. This photo shows the first big croc we caught, in the Goyder River, in July 1972. L to R, Gordon Grigg, Harry Messel, Dean Stevens and Keith Brockelsby. Photographer Chris Lehman.

A major stimulus for Harry Messel's Crocodile Research Programme was his desire to track crocodile movements using radiotelemetry. This photo (bottom left) records bycatch from our netting activities, working from a land based camp near the junction of the Mann and Liverpool Rivers, NT in 1973. Grahame Webb (white overalls) turned his passion for crocodiles into a career and he is now, among many other things, Chair of the IUCN's Crocodile Specialist Group. Grahame is a passionate advocate for achieving conservation benefit through the sustainable use of wildlife, so he and I have much in common. Photographer not recorded.

To support the research programme, a ship was built and fitted out and an aircraft purchased. The ship became the vehicle for surveys of crocodile populations in tidal river systems all the way from the Kimberley to Cape York. In the dry season of 1975 it made a very convenient base in the Liverpool River, NT, for sampling blood and urine from more than 100 crocs captured across a salinity gradient from fresh water to the sea. The results showed that even the small crocs can maintain their osmotic homeostasis in salt water. This posed a puzzle that we came back to later on.

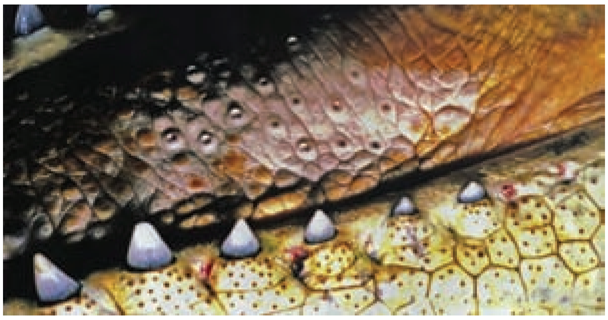
Crocodiles commonly build riverside nests and many are lost through flooding. Here Peter Harlow regards the tip of a nest flooded beside the Liverpool River, NT.

As well as the ship, the University of Sydney's Crocodile Research Programme had a shore-based facility at Maningrida at the mouth of the Liverpool. Two of these specially designed boats enabled us to work over more than 100km of the Liverpool and Tomkinson River systems.

Crocodiles build spectacular nests. This one was built high enough to avoid flooding. Photo, G. Vorlicek.

Peter Harlow and Jon Wright wrestle with a recaptured croc in the Tomkinson River, NT, in July 1979. This was part of a study over several field trips trying to work out how saltwater crocodiles, *Crocodylus porosus*, cope with life in salt water. Forty-eight crocs were captured across a range of salinities and loaded with radioactive sodium and tritiated water. This croc was one of 30 which we recaptured 15-17 days later.

Laurence Taplin had first learned how to catch smallish crocs from Col Limpus, in Townsville. Just jump on them. We were mightily impressed! Here Laurence is photographed after catching a croc at the edge of the Liverpool River, NT, in very soft mud. Don't put this technique on your next field trip risk assessment form, it would be inadvisable today, with many more crocs around now after hunting was stopped in 1971.



The answer to how *Crocodylus porosus* cope in sea water was provided in June 1980 when Laurence Taplin, in the course of a PhD programme, discovered salt glands on the surface of the tongue. The story of this and much of the subsequent research can be found at http://espace.library.uq.edu.au/view/UQ:9724

Salt glands were described originally in 1957 in birds (a cormorant) by Knut Schmidt-Nielsen and colleagues. Those glands were associated with the nose (nasal salt glands). The following year Schmidt-Nielsen published a description of orbital salt glands in marine turtles, and speculated that crocodiles must also have them…. perhaps that was the origin of 'crocodile tears'. But earliest studies of crocodilians concluded they had none. So it was particularly satisfying for Laurence Taplin (left) to be able to show Knut Schmidt-Nielsen and his wife Margareta the salt glands on the tongue of a hatchling *C. porosus* when they visited Sydney in 1983.

Graeme Caughley recruited me as a kangaroo survey pilot in 1975 (I had learned to fly through the Crocodile Research Programme). Here, Peter Harlow manhandles fuel at Kingoonya, SA while Graeme checks the data sheets.

Red kangaroos in the northeast of the South Australian Pastoral Zone.

Refuelling somewhere in Queensland, August 1980 (Grigg centre, Caughley right). Photographer not recorded.

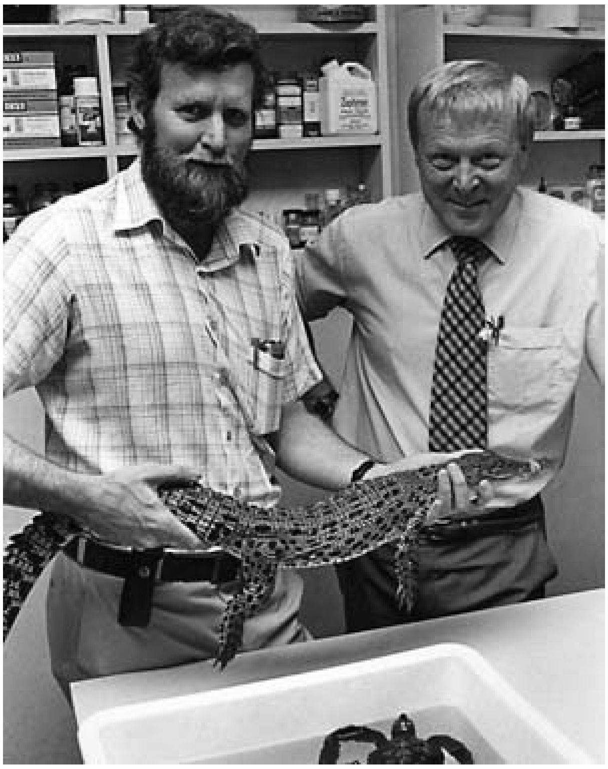
Lyn Beard and Tony Pople resting at the end of a long transect. They were stalwart aerial survey observers for many years. Tony's PhD was on population ecology of kangaroos.

Graeme Caughley attends to gravel rash on the propeller. August 1980

Peter Harlow, Jeff Short and Graeme Caughley; pre-flight preparations.

Geoff Ross, Mark Fletcher and Lyn Beard waiting at Tarcoola SA for fog to clear. 1983. This was the sixth of what became 25 annual surveys our team made of kangaroos in the South Australian pastoral Zone.

The arrival of GPS simplified navigation greatly, allowing the maintenance of a constant speed (100 knots) and accurate adherence to the transect. (Grigg, photograph by Lyn Beard)



Kjell Johansen (right) on sabbatical at The University of Sydney in 1981, during which we explored the workings of the crocodile heart. Photographer not recorded.

Lyn Beard in the 'blood gas' lab in Zoology at the University of Sydney, 1981. Kjell's surgical skills made intubating the crucial blood vessels possible and Lyn analysed blood gases in the ante-room to 'the surgery'.

Jon Wright monitors a diving croc in 'the surgery'. This was a room set up originally by Geoff Satchell and in which he did research on Port Jackson Shark cardiovascular physiology.

Laurence Taplin (left) and David Kirshner at Maningrida in March 1981. Dave did his PhD on buoyancy in crocodiles and he is at present illustrating a book I am writing on crocodilian biology.

A light aircraft facilitated travel and transport of fragile equipment to remote locations. This photo was taken at Maningrida, NT, in October 1981, on an attempted study of diving behaviour in *Crocodylus porosus*. L to R Bill Farwell, Kjetil Johansen, Kjell Johansen, Gordon Grigg. Photographer not recorded.

Bill Farwell and Jim Kinney built dive loggers which we attached with neoprene jackets. Here, Peter Harlow holds the only recapture still wearing its jacket, from 12 crocs released….. much work for very little return! Thankfully, Craig Franklin and Hamish Campbell at UQ are now getting lots of wonderful dive data, technology and attachment methods having both improved a lot since 1981.

Rick Shine shows a black snake at Sandy Camp in the Macquarie Marshes, NSW. Andrew Grigg and I accompanied Rick on a field trip there in October 1979, where we chanced upon wondrous viewing of male combat and mating in red-bellied black snakes.

Harry Messel had reported *Crocodylus johnstoni* ('freshies') living in salty water in the Limmen Bight River. Photo Bill Green.

In late 1982 Laurence Taplin, Lyn Beard, Patti Schmitt and I went to have a look. We flew to Urapunga on the Roper River and went overland a day's drive to the Limmen. With this small boat we were able to survey the many tens of kilometers of the river system. This would be much more difficult with today's OH&S requirements. Photo Patti Schmitt.

We did find freshies in salty water. Here Laurence Taplin and Lyn Beard conduct riverbank physiology watched by a truckload of locals who dropped by to go fishing. Limmen Bight River 1982.

Laurence Taplin spins a blood sample using a hand centrifuge clamped to the back of the truck.

Lyn Beard and I sample secretions from tongues of *C. johnstoni* ("Freshies") caught in saline water on a second trip to the Limmen Bight River. Only in the early hours of the morning was the ambient temperature cool enough for us to remove the crocs from the water to work on them. November 1984. Photo Laurence Taplin.

Tony Pople, Lyn Beard and I wanted to track red kangaroos by satellite and thought we would practice on camels. Ian Cameron at Kings Canyon was willing to help catch them and we got good data on the movements of three camels over many months. We never did succeed in tracking red kangaroos, but were lucky enough to meet up with Birgit Dörges and Jürgen Heuke working on camels with Alex Coppock on his property, Newhaven, NW of Alice Springs. This led to studies on the thermal relations of camels, donkeys and cattle.

Persuading a captured female camel to lie down.

Implanting temperature sensitive transmitters and loggers. The shade is to keep the camel cool, and we draped it with wet cloths as well. (L to R Jürgen Heuke, Jocelyn Coventry, Lyn Beard, Birgit Dörges, Alex Coppock) Newhaven 2000.

Two bull camels in rut.

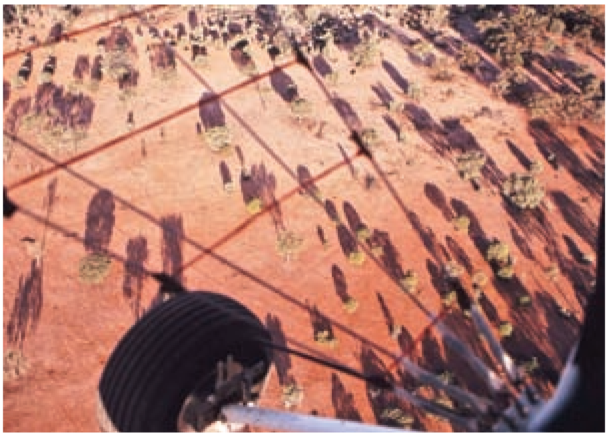
Releasing the female, with her tracking collar. Ian Cameron at left. West of Kings Canyon, NT, 1986.

Jocelyn Coventry (veterinary surgeon, see her paper elsewhere), Birgit Dörges, Jürgen Heuke, Grigg and Alex Coppock.

A herd of camels at Babbler Bore, Newhaven NT. The bull is displaying his dulaa, a sac formed from the palate that signals to rival males when it is inflated. The females take no notice of it.

Marcos Coutinho and Lyn Beard in April 1992, about to fly over the Brazilian Pantanal to look for caiman from Marcos' ultralight aircraft. Marcos subsequently completed a PhD at UQ on the population ecology of caimans. The flight gave us the idea of using an ultralight as a helicopter substitute for estimating kangaroo populations at property scales because, like a helicopter it can fly at 50 knots, but much more cheaply.

With funding from Queensland National Parks and Wildlife Service, we purchased a Drifter ultralight in 1993 and flew surveys in areas being counted also from a helicopter. The observer sits behind the pilot and can count looking down either left or right. GPS had become available and made navigation easy. Results were comparable, validating the suitability of an ultralight as an aerial survey platform. Photographer not recorded.



Observer's eye view, looking down on the left side through a grid of tapes to mark parallel strips of known width on the ground (as long as the pilot maintains the correct height). Photo Lyn Beard.

Flying in the exposed ultralight in mid-winter requires warm clothing. Seated so far forward and looking over the top of the windshield it was like flying a motorbike with wings. Fantastic! At one stage we practically flew in formation with a flight of pelicans. On another we had a top down view as we overtook a large flock of bustards. These aircraft are used for mustering stock. If you don't mind sitting out in the open on a plastic chair bolted to a steel pipe, you cannot beat the view. Photographer Barry Beard.

Bill Magnusson (right), Albertina Lima (obscured) and me on a nocturnal walk in Ducke Reserve outside Manaus Brazil in April 1992. Bill is a colleague from Sydney days (Crocodile Research Programme in fact) who now lives in Manaus and works at the Instituto Nacional de Pesquisas da Amazônia (INPA). Bill has promoted many productive associations between Brazilian and Australian biologists. Photo, L. Beard.

Bill Magnusson encouraged us to look at the physiology of a population of Broad-snouted Caiman, *Caiman latirostris*, living in a very salty estuary on an island south of Sao Paulo. Lyn Beard and I did so in May 1992; see http://espace.library.uq.edu.au/view/UQ:9380.

Bill Magnusson introduces Jan Grigg to some of the local plants along a stream flowing through his plot of land adjoining Reserva Ducke, Brazil. July 2003.

Marcos Coutinho with a *Caiman jacare* at Nhumirim Farm, Brazilian Pantanal, July 1997. Marcos did his PhD at the University of Queensland on the population ecology of this crocodilian and Hamish McCallum and I were at Nhumirim on a supervisors' field visit. Marcos works for IBAMA (Brazilian Institute of Environment and Renewable Natural Resources) and is based in Brasilia.

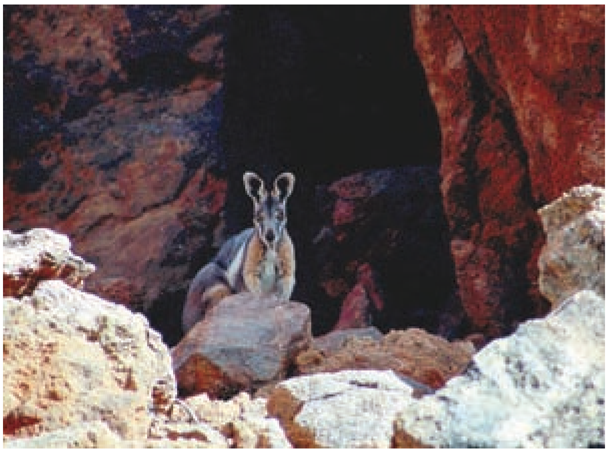
Reinaldo Lourival, another who came to Australia from Brazil to study, shows us jaguar scratches on a tree on Fazenda Rio Negro, southern Pantanal. July 2003. Reinaldo's PhD was with Hugh Possingham and others on conservation issues and strategies in the Pantanal. He now works with The Nature Conservancy in Brasilia.

Another international connection we value has been that with Sweden, with visits by Stefan Nilsson (pictured), Susanne Holmgren and Michel Axelsson, to collaborate with Craig Franklin and myself and pursue our common interests in crocodile hearts and lungfish.

In about 1978, Peter Harlow and I initiated an annual field course for third year students at Fowlers Gap in north west NSW, a property run by the University of New South Wales. When I moved to Brisbane, a similar course was created at Idalia National Park, southwest of Blackall. It still runs and is very popular. Field courses are hard work but are greatly appreciated by students.

"The Hill of Knowledge", a great place to see Yellow-footed Rock-wallabies

Students camp and most activites are out of doors. Here, David Lamb (at whiteboard) reviews the data.



Yellow-footed Rock-wallaby *Petrogale xanthopus*. Hill of Knowledge, Idalia National Park, Qld..

A voluntary (and well subscribed) activity is an opportunity to dissect a freshly shot kangaroo.

Can kangaroos obtain sufficient water from their food without drinking? This is explored by analysing energy and water contents of plants. In this case, a bomb calorimeter is being used to measure energy content of plant material. Lyn Beard (left) and unidentified student.

Les and Glenys Fletcher could be relied upon to keep up a plentiful supply of tucker.

With Mike Augee, Lyn Beard and I embarked in 1987 on a radiotelemetry study of echidnas in the Mt Kosciusko high country, wondering how they dealt with the winters. It soon became clear that echidnas hibernate, in the 'classical' mammalian sense of the term. So, hibernation occurs in all three major mammalian groups, suggesting that it is very ancient.

Lyn Beard tracks an echidna to its hibernaculum, using a radio receiver to pick up its implanted, temperature sensitive transmitter. Prussian Plain, Kosciusko National Park, winter 1987.

Barbara Smith was a wonderful and very enthusiastic help with the echidna studies, maintaining and caring for a colony at Belrose, a northern suburb of Sydney. Barbara was able to habituate these normally shy animals, making them much more amenable to handling.

After moving to Brisbane, our echidna work moved to the Stanthorpe area. This photo, however, is taken near Alice Springs in 2000. Even here we found hibernation. The work expanded in recent years to focus on implications for the evolution of endothermy. See http://espace.library.uq.edu.au/view/UQ:9503. Peter Brice, whose PhD was on echidna thermal relations, is exploring this topic further and in a quantitative way (see his paper elsewere).

Netting freshwater crocs at the Croc Hole, Lynd River, 1989 for Frank Seebacher's PhD study of their thermoregulation (L to R. Frank, Col Limpus, Gordon Grigg). Photographer not recorded.

Frank Seebacher and Lyn Beard at the Edward River Crocodile Farm, N Qld., 1993, set up an automated system to record body temperature signals from transmitters implanted in crocodiles.

A 1 tonne croc basking in winter at the Edward River Crocodile farm. Crocs captive in a very large lagoon provided an opportunity to study their thermal relations, including seasonal changes, in a naturalistic situation.

Rufus Wells at Edward R Croc Farm, March 1991. Growing out of our happy and productive field trip to Antarctica in 1986 was the idea of studying embryonic crocodile gas exchange (see paper by Rufus elsewhere in this volume.)

Through satellite tracking technology, it is now possible to do what Harry Messel set out to do in 1970; i.e. radio-track very large crocodiles. Supported partly by a bequest from notable herpetologist Charles Tanner, we captured and fixed radio transmitters to two large crocs in the Endeavour River at Cooktown in May 2003. This one, a big male, was dubbed Charles in honour of Charles Tanner, and it patrolled up and down the Endeavour River for the next eight months, when the transmitter went off the air. Mark Read centre.

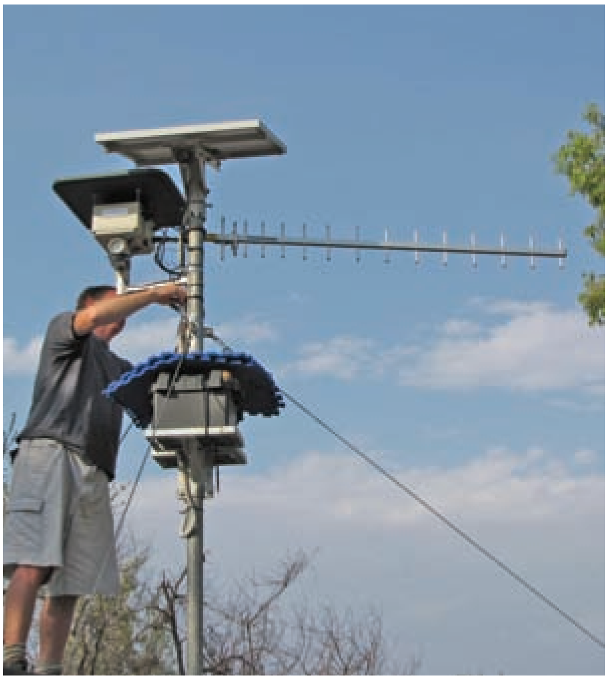
Gordon Grigg, Mark Read, Toby Millyard and Craig Franklin on the top of the hill behind Cooktown after the release of the first two crocs wearing satellite transmitters, in May 2003. Subsequently, with funding from Queensland's Parks and Wildlife Service and Australia Zoo, the study expanded considerably. Photographer not recorded.

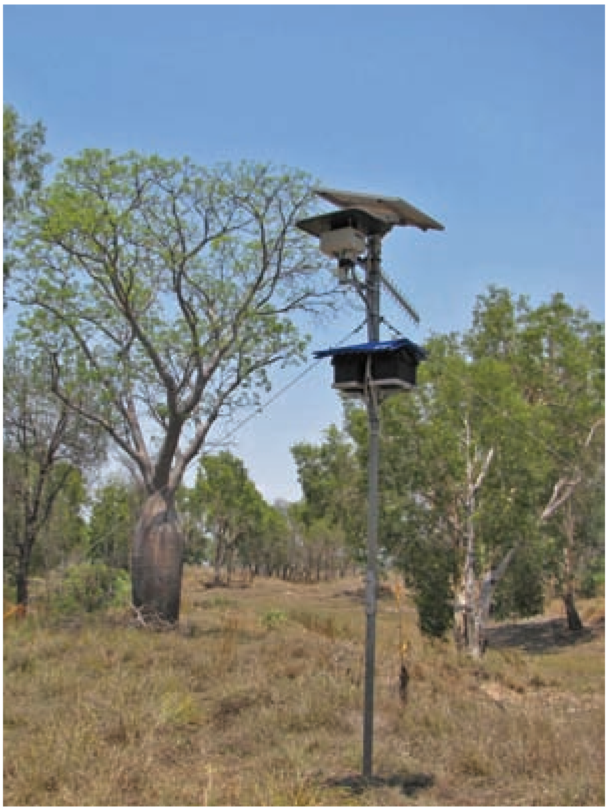
With Andrew Taylor (University of New South Wales) and Hamish McCallum (then University of Queensland), we set up 10 automated sites like this along the Roper Valley Highway in the NT, monitoring the calling activity throughout 10 wet seasons (1997-2007) to look for possible impacts of the arrival of toads.

Hamish McCallum (left) and Andrew Taylor downloading data from one of the monitoring sites on one of our annual visits (2007).

Les Fletcher (left), then from the University of Queensland Zoology workshop and Andrew Taylor at one of six acoustic monitoring sites we have in Kakadu National Park. Les contrived and built this alternative mounting system for the solar panels, batteries, microphone, rain gauge and computer system.

L to R Dave Johnson, Andrew Taylor and Johan Thom (Northtronics Pty. Ltd.). With funding from the Commonwealth Environmental Research Facility, Andrew is taking our original bioacoustic monitoring technology to a new level, incorporating the capacity to monitor and identify birds and bats as well as frogs, and aiming to make it user friendly. Bottom left and below are examples of our latest systems, internet-linked via the mobile phone network. Bottom left: System near Jabiru, NT, Below: system at Parry Creek Farm near Wyndham WA. Photos taken in November 2009.





Long serving editor of the Australian Zoologist honoured at his *alma mater,* the University of Sydney, May 19, 2006.

Some of a gathering of friends and family in the Main Quad, outside the Great Hall at The University of Sydney, following the ceremony at which Dan Lunney was awarded an Honorary Doctor of Science, 19 May 2006.

L to R, Mike Thompson, Chris Dickman, Dan Lunney, Harry Recher, Gordon Grigg, Jack Baker, Rick Shine. Behind Rick is Dan's sister Rowan and his son Paddy is behind Jack. Photographer not recorded.